

WE CLAIM:

1. A force isolating apparatus for use in a vehicle seat suspension, said suspension having a base frame and an upper frame mounted to move horizontally relative to the base frame, said force isolating apparatus comprising:

a first pair of in line springs comprising a first coiled wire compression spring and a first elastomeric compression spring;

a second pair of in line springs comprising a second coiled wire compression spring and a second elastomeric compression spring; and

an actuator disposed between said first and second pairs of springs, said actuator being horizontally movable to actuate one of the spring pairs when the base frame and upper frame move relative to one another.

2. The force isolating apparatus of claim 1 wherein the first pair of springs is positioned in line with the second pair of springs.

3. The force isolating apparatus of claim 1 further comprising a shock absorber which acts in cooperation with said spring pairs when the base frame and upper frame move relative to one another.

4. The force isolating apparatus of claim 3 wherein said shock absorber is mounted along a longitudinal axis which is coincident with the longitudinal axis of one or both spring pairs.

5. The force isolating apparatus of claim 1 wherein said first and second coiled wire compression springs are conical coil springs, having a progressive spring rate.

6. The force isolating apparatus of claim 5 wherein said first and second elastomeric compression springs are conical elastomeric springs, having a progressive spring rate.

7. The force isolating apparatus of claim 1 further comprising a platform having opposing spring stops with the first and second spring pairs mounted between the stops, and wherein said spring actuator is slidably mounted to said platform intermediate the spring stops and between the first and second spring pairs.

8. The force isolating apparatus of claim 7 wherein said platform is mounted in fixed horizontal position relative to said base frame and the spring actuator is mounted in fixed horizontal position relative to said upper frame.

9. The force isolating apparatus of claim 7 wherein said actuator includes a bore and wherein each spring pair is mounted to support bar that is slidable supported by the bore in said actuator.

10. The force isolating apparatus of claim 7 further comprising a shock absorber having one end connected to said platform and the other end operatively associated with said upper frame.